IMPROVING STUDENT-ATHLETES' WRITING SKILLS: EXAMINING THE EFFECTS OF SELF-REGULATED STRATEGY DEVELOPMENT COUPLED WITH MODIFIED RECIPROCAL TEACHING

by

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THESIS ABSTRACT

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Title: Improving Student-Athletes' Writing Skills: Examining the Effects of Self-Regulated Strategy Development Coupled with Modified Reciprocal Teaching

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This research considers one of a university's most academically vulnerable populations - student-athletes. The purpose of this investigation was to test the effectiveness of a multi-component writing intervention that combines two empirically validated strategies - Self-Regulated Strategy Development and a modified version of Reciprocal Teaching.

This randomized control trial was conducted with 50 student-athletes enrolled in an introductory writing course. Pre-test and post-test data on the Test of Written Language IV (TOWL IV), essay grades, and post-test grades in the course were gathered. All data were analyzed using a one-way Analysis of Covariance (ANCOVA) using pre-test scores as covariates, group assignment as the independent variable (Intervention vs. Control), and post-test scores on the TOWL IV, essay grades, and post-GPA in the course as dependent variables. This analysis will allow us to determine the effectiveness of the combined SRSD/MRT intervention on the writing skills of student-athletes.

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CHAPTER I

INTRODUCTION

The Need for Improved Writing Skills

Writing is a foundational skill necessary in the daily lives of most individuals in our society, and this is especially true for young adults pursuing postsecondary education. It is not only a major component of evaluation for college acceptance, but it is also a necessity within a majority of college courses (Graham & Perin, 2007b; MacArthur & Lembo, 2009). Despite the importance of writing, nearly one third of all high school graduates who have completed the ACT are not prepared for an introductory university writing course (ACT, 2009) and college instructors estimated that 50% of high school graduates are ill equipped for college-level writing (Achieve, Inc., 2005). In addition, results of the 2002 National Assessment of Educational Progress writing exam indicated, that 77% of 12th-graders did not score at the Proficient level on this exam (Persky, Daane, & Jin, 2003). Together, these findings suggest that large numbers of entering freshmen at postsecondary institutions will require significant remediation and support in writing in order to be successful in their course of study.

Although many students could benefit from additional support in the area of writing, student-athletes are one of the most vulnerable populations on college and university campuses. The unique demands associated with college athletics can result in significant time constraints that can have negative effects on academic performance. For example, in a recent national study, 53% of student-athletes reported that they had not spent as much time on their academic studies as they would have liked to have spent, and

80% indicated that this was due to responsibilities and time commitments related to athletics (Potuto & O'Hanlon, 2006).

Student-athletes also share many of the same academic struggles that all students face. Prospective student-athletes (high school seniors) were found to have only slightly better academic profiles than the total national population of high school seniors as reported by The College Board and ACT (Bray, 2001). With such similar academic characteristics, it is reasonable to assume that data regarding the poor writing performance of *all* students apply to freshman student-athletes as well. The student-athlete population also contains a higher percentage of students with learning disabilities (2.7%, N4A Committee on Learning Disabilities, 1998) than the general undergraduate student population (.84%, Horn, Nevill, & Griffith, 2006). Just as large numbers of the total student population will require significant writing instruction, so too will large numbers of entering freshman student-athletes.

CHAPTER II

LITERATURE REVIEW

The research conducted in the area of postsecondary writing largely began with Shaughnessy (1977) as a reaction to the influx of under-prepared students into City University of New York colleges and their need for remedial writing instruction. However, Braddock (1963) were the first to outline best-practices for empirical writing research and noted five studies that made significant contribution to writing research in methods and or results. One of the studies examined, Buxton (1958), found that students in freshman writing courses showed greater improvement if provided with grades, thorough criticism, and the opportunity to revise (Braddock, 1963). Another study found the "direct method" of writing instruction to be more effective, which included opportunities for practice and feedback, as well as the use of examples and imitation, as compared to a traditional formal grammar approach where students learned the rules of grammar (Harris, 1962 as cited in Braddock, 1963). In addition, the other three studies included a look at the variation in the quality of student writing and the validity of using a single essay for evaluation (Kincaid, 1953), the effect of class size (Smith, 1931), and a comparison of three instructional methods (Becker, 1958).

A majority of research in writing centered on instruction in the conventions of writing until Hillocks (1986) conducted a meta-analysis that found cooperative engagement in writing process strategies had the largest effect size for postsecondary students. Hillocks (1986) also found the use of set scales for evaluation of student writing by the students themselves, peers and teachers, the use of sentence combining

instruction as defined by Mellon (1969) and O'Hare (1973), and instruction in "inquiry" or scientific writing to be most effective.

The following sections will examine existing literature related to various methods utilized at postsecondary institutions to improve low-level writing skills. This review will also include studies specific to student-athletes, as well as adolescents in secondary education. The major reason for including studies focusing on secondary education is the lack of empirical research on writing conducted at the postsecondary level.

Remediation Courses

With a few exceptions, colleges are not prepared to offer students sufficient support in the improvement of low-level writing skills. Direct writing instruction takes place in the K-12 years and the assumption is that college students come prepared to write at a college level and if not, they need to access resources quickly. In order to provide students with significant writing instruction at the postsecondary level, a number of approaches are available. Students who are not yet prepared for an introductory university writing course may be diverted to remedial courses based on university admission information or university assessments administered to incoming freshman. Mixed results in the success of remedial writing courses have been found to be a result of the convergence of curriculum, pedagogy, and level of supportive academic resources provided to students (Callahan & Chumney, 2009).

In one qualitative and one quantitative program analysis of California State University's Early Assessment Program, both articles revealed that the little research conducted on remediation outcomes has shown a minimal effect on grades, no effect for students close to the remediation criterion, and some positive effects for students in the

areas of early persistence and overall credits earned (Postsecondary preparation and remediation, 2010; Tierney & Garcia, 2011). Tierney & Garcia (2011) concluded that remediation at postsecondary institutions is a wasted effort since there is little evidence for gains in degree completion. In addition, one analysis of college transcripts produced an inverse relationship between the number of remedial courses a student completed and degree completion (Adelman, 1998). Though the inverse relationship may be attributed to skill level and academic strength, rather than the lack of effectiveness of remediation, it does show that remediation does not completely address a student's need for improved skills.

One study conducted by Knight (2007) comparing a traditional remedial writing course to a strategy-based remedial writing course developed at Humber College based on University of Kansas Center for Research on Learning learning strategy curriculum, found students in the strategy-based course to have greater improvement on two writing assessments. Students enrolled in the traditional remedial course even decreased in performance on some subtests of the spontaneous writing measure on the TOWL II. The findings in the study conducted by Knight point to possible improvements to the structure and content of remedial writing courses, as well as possible approaches for improving postsecondary writing skills in contexts outside the classroom through use of strategy instruction.

Freshman Introductory Courses

In addition to remedial courses, many universities also offer various learning strategy focused courses, some of which specifically target freshman student-athletes. Learning strategy courses for freshmen have been found to be a best practice within

higher education as a means to improve students' abilities to process information, engage in higher level thinking and problem solving, and reduce text-taking anxiety (Rachal, Daigle, & Rachal, 2007; Weinstein, 1994). Though these courses do target a variety of needs that many underprepared freshmen may have, they do not specifically target the writing skill deficits many freshman students possess.

One study conducted by Reed, Kennett, Lewis, Lund-Lucas, Stallberh & Newbold (2009), examined the effects of a freshman course on students with learning disabilities in comparison to a high-intervention and low-intervention of individual appointments with learning skills counselors based on student preference as opposed to random assignment. The study found higher GPAs for the freshman course group (3.1) as compared to the low-intervention group (2.3), but no statistically significant difference for the high-intervention group (2.8) (Reed et al., 2009). The authors suggest that these grades may not be sustainable in the long-term without continued support and service to reinforce the resourcefulness skills learned in the course. They also noted that the courses were discipline specific, whereas the interventions were not discipline specific, this may have contributed to the increased success of the students who chose to participate in the course because they learned skills relevant to their future coursework. In addition, no measures of specific academic skills such as reading or writing were conducted, making it difficult to determine if the course improved these areas. The article did comment on the need for increased research in the area of specific intervention programs for students with learning disabilities at the postsecondary level, as a result of the dearth of literature that currently exists (Reed et al., 2009).

Tutoring

Finally, individual tutoring is another programmatic approach to improving the writing of students at the postsecondary level. Though one-to-one tutoring has been a topic of controversy, it has been found to be effective by some (Graesser, Bowers, & Hacker, 1997; Lepper, Drake, & O'Donnell-Johnson, 1997; McArthur, Lewis, & Bishay, 1996; Merrill, Reiser, Merrill, & Landes, 1995). Tutoring has also been found to be an effective means to meet the writing needs of English language learners at the postsecondary level (Healy & Bosher, 1992). Specifically, one-to-one tutoring that takes the form of instructional intervention focusing on teaching specific strategies intended to be generalized and used independently has been found to be the most effective form of one-to-one tutoring (Hock, Deshler, & Schumaker, 1999). Although, the research thus far on tutoring has not included longitudinal studies examining whether or not long-term effects on student success exist (Hock et al., 1999).

Though use of writing strategies in one-to-one tutor instruction has been found to be somewhat effective at the postsecondary level, very little research has been conducted in the area and few specific programs have been outlined as effective (MacArthur & Lembo, 2009). MacArthur & Lembo (2009) suggest looking to writing research at the secondary level to inform best practices with adult learners. Their study of three adult learners in an adult education class used principles of Self-Regulated Strategy Development (Harris & Graham, 1996) along with a planning, writing and revising strategy (MacArthur & Lembo, 2009). The gains that the three participants made were equal to those found in secondary and elementary students (MacArthur & Lembo, 2009). Though MacArthur & Lembo (2009) note that there may be room for improvement in

altering strategy instruction methods so they are even more effective when used with adults, their findings suggest that more research should be conducted on the effectiveness of theses methods with adult populations.

Studies Involving Student-Athletes

Much of the research surrounding academics and student-athletes has focused on graduation rates, academic progress rates, and to some extent programmatic services found to be most effective, but the majority of literature available on student-athletes and academics is largely anecdotal. Few empirical studies have been conducted, which may be due to the inability of researchers to access this specific population. The following studies outline anecdotal best practices and empirical research.

One study conducted by Hollis (2002) examined the impact of student-athlete services (tutoring, advising, study hall, academic monitoring, and access to computers), staff, space, budget and administrative staff and student-athlete graduation rates for 91 Division I institutions through use of step-wise regression analysis. The study found an inverse relationship between services offered and graduation rates, which the author attributed to lower student-athlete academic profiles at institutions where more services are offered (Hollis, 2002). These findings suggest more research on the impact of specific student-athlete services needs to be conducted.

In another study conducted at the University of North Florida, researchers examine which academic services were most highly correlated with student-athlete academic success (Kane & Gropper, 2010). This study examined study hall attendance, HS GPA and frequency of coach questioning a student-athlete about academic progress in correlation to college GPA. The results concluded that study hall attendance had an

inverse relationship to GPA and HS GPA had the greatest correlation to college GPA (Kane & Gropper, 2010). The results of this study seem to merely point out that HS GPA is an accurate predictor of college GPA for student-athletes, and the findings about correlation to study hall do not provide enough information about the effectiveness of study hall improving academic outcomes over time, or the services offered to students at study hall that could impact academic outcomes.

Much of the literature on best practices for supporting student-athletes academically is focused on holistic models that do not detail evidence-based practices for improving academic skills. One such holistic model that was outlined for student-athletes with disabilities describes a long list of services and best practices without any specific academic strategies (Clark & Parette, 2002). Instead, the authors suggest contacting specialists on campus and referring students to tutors trained in skill building strategies (Clark & Parette, 2002). The holistic model provides a framework of what to provide for student-athlete services professionals, rather than a program that informs how to provide services. Another such review of best practices for student-athlete services professionals suggests providing all student-athletes with tutoring support specific to content of courses, time-management and organization support and referring students to special education professionals for remediation of deficit skills (Carodine, Almond & Gratto, 2001). Again, there is no mention of specific evidence-based strategies or interventions that have been found to be successful for student-athletes.

Adolescent Literacy and Writing Research

As noted in the above sections, there is a dearth of research in the area of postsecondary writing and some researchers have looked to adolescent literacy as a

source of best practices to examine. Therefore, a review of best practices for adolescents was conducted. In a meta-analysis conducted by Graham & Perin (2007a) the most effective best practices for adolescents was found to be strategy instruction, and specifically strategy instruction that utilized Self-Regulated Strategy Development, or SRSD (Harris & Graham, 1996) had the largest effect size. SRSD is the explicit instruction in the knowledge and skills needed to use strategies independently, as well as explicit instruction in their use (Harris & Graham, 1996). It is characterized by six stages:

(a) develop background knowledge; provide students with the background information necessary to understand the strategy.

(b) describe it; describe the strategy that is being taught in student friendly language, including the purpose, each step involved, and a mnemonic for remembering the steps.

(c) model it; model the strategy using positive examples and self-talk that explicitly shows students how to apply the strategy using self-regulation.

(d) memorize it; help students memorize the mnemonic and each step of the strategy.

(e) support it; support the students in using the strategy and self-regulation skills while working towards mastery, provide opportunities to use the strategy in multiple contexts.

(f) independent use; continue to monitor student mastery of the strategy and self-regulation skills, provide feedback and instruction as needed.

There are also four self-regulation skills explicitly taught:

(a) goal-setting

(b) self-monitoring

(c) self-instruction

(d) self-reinforcement

As an instructional strategy, SRSD has been shown to be effective in improving both writing and reading when coupled with various writing or reading strategies (Anderson, 1997; Curry, 1997; De La Paz, 2005; De La Paz & Graham, 1997; De La Paz & Graham, 2002; Glaser, 2005; Johnson, Graham, & Harris, 1997; MacArthur, Schwartz, & Graham, 1991; Sawyer, Graham, & Harris, 1992).

Reading and writing are inexorably intertwined within postsecondary education in what is referred to as critical literacy (Flower, 1990). Students are often asked within both introductory university writing courses and content specific courses to analyze, compare or contrast, summarize, write persuasively, or otherwise thoughtfully engage a particular reading or even more specifically a singular idea within a reading. Thus critically reading for the purposes of planning writing is the foundational skill that college students need to be successful in postsecondary education. It has also been suggested that writing tutors at the postsecondary level should incorporate reading strategies and instruction in order to most effectively address students' writing deficiencies (Griswold, 2006). Flower (1990) suggests that in order for students to successfully engage in critical literacy and "read-to-write", goal-setting and strategies that support the achievement of specific reading-writing goals must be included within instruction. Marrying a reading-writing strategy with the SRSD instructional strategy can potentially provide the necessary support that is called for by Flower (1990).

One specific reading strategy that has been shown to be effective for improving reading comprehension is Reciprocal Teaching (Palincsar & Brown, 1985). RT developed by Palincsar & Brown in the early 1980s involves implementing the components of the reading comprehension strategy through dialogue between teacher and students, or among students. Four activities embody the comprehension strategy: clarifying, predicting, questioning, and summarizing. It allows for students to enhance comprehension and monitor that comprehension so the strategy can be generalized and independently used. Modifying this strategy to closely align it with the planning and writing stages of composition would address the reading-writing connection described by Flower (1990).

Summary

Student-athletes within postsecondary education have a distinct need for significant writing instruction and intervention. Though there is a lack of research on how the writing of college student-athletes can be effectively developed, evidence-based interventions for adolescents should be researched to determine their effectiveness with student-athletes. SRSD and RT are potential strategies that should be investigated to determine if they are effective in improving the writing of college student-athletes, since they have been found to be effective with adolescents.

Purpose Statement and Research Questions

The purpose of this investigation is to test the effectiveness of a multi-component intervention that combines two empirically validated strategies-- Self-Regulated Strategy Development (SRSD, Harris & Graham, 1996) and a modified version of Reciprocal Teaching (MRT, Palincsar & Brown, 1985).

The following research questions will guide the investigation:

1. Does the combined intervention of SRSD/MRT improve the writing skills of freshman student-athletes?

2. Do college freshman student-athletes who participate in a SRSD/MRT intervention have stronger gains in essay grades in an introductory writing course and the Test of Written Language IV than freshman student-athletes who participate in one-to-one tutoring?

CHAPTER III

METHODS

Participants

Participants in this research project were freshman student-athletes enrolling at the University of Oregon for the first time during Fall 2010. This population received mandatory tutoring as required by the NCAA, as well as Support Services for Student-Athletes policies and University of Oregon Athletic Department policies. As a result, all entering freshman enrolled in WR 121 were required to attend twice weekly 50 minute tutoring sessions, as per NCAA and departmental policies and were participants in this research. Participants were assigned to either the intervention or "business as usual" control group. A total of 31 student-athletes were included in the study; 11 were assigned to the control group and 20 were assigned to the intervention group. The participants included 9 females and 22 males who represent a total of 8 sports: Baseball (10), Football (9), Women's Basketball (4), Men's Track and Field (3), Women's Volleyball (2), Women's Golf (1), Women's Acrobatics and Tumbling (1), Women's Track and Field (1). In addition, 9 participants were also on a learning specialists caseload during the study. Learning specialists work with student-athletes who have a diagnosed learning disability or have been identified as "at-risk" or in need of additional support once weekly or biweekly and generally assist students with all classes they are registered for.

Measures and Data Collection

Data was collected using a variety of measures. First, pre-test and post-test scores of the Spontaneous Writing Subtest of the Test of Written Language, 4th edition (TOWL IV) were collected. The TOWL IV is a valid and reliable measure of written language

skills (Hammill & Larsen, 2009). The TOWL IV has been shown to be a valuable measure for both documenting student progress in special writing programs and serving as a measurement tool in writing research (Hammill & Larsen, 2009). The Spontaneous Writing Subtest has been used to assess a student's ability to create complete stories by evaluating if important elements are included within the story (Asaro-Saddler & Saddler, 2010). The A form of the Spontaneous Writing Subtest, administered for the pre- and post-test, has a reliability of .85, with a reliability of .80 and .72 for the Contextual Conventions and Story Composition components respectively.

Second, essay grades from WR 121 instructors and post-test grades in the course were gathered. The letter grades were converted to a 4.3 grade point scale, reflecting the conventional institutional method of measuring academic performance. This measurement represents the most prevalent unit of measurement used at the postsecondary level and is used by the university as an indicator of student mastery of content and completion of general education degree requirements.

Procedures

The research was conducted as a randomized control trial with an intervention and a "business as usual" control group. The PI trained the tutors and staff members working with the student-athletes in the intervention group in the combined SRSD/MRT intervention during a five-hour training session before the beginning of the term. Following training, students were assigned to the intervention or control group using the random assignment procedure in SPSS. The intervention was provided to student-athletes in 50 minute one-on-one tutoring sessions twice weekly for six weeks. During the initial four weeks of the term, the intervention was not provided to the intervention

group in order to first obtain an initial essay grade. In addition to weekly training meetings with tutors and staff, each tutor's sessions were observed at least once by the PI in order to ensure fidelity. The "business as usual" control group also received 50 minute one-to-one tutoring sessions twice weekly with no SRSD/MRT intervention; fidelity of the "business as usual" tutor sessions were ensured by observing each tutor's sessions at least once during the study's duration.

The combined SRSD/MRT intervention utilized the explicit instructional model of SRSD to convey the MRT planning and revising strategies adapted by the PI for specific use with the university's introductory writing course. As outlined in the literature review, SRSD is an explicit instructional model that is characterized by six stages: (a) develop background knowledge, (b) describe it, (c) model it, (d) memorize it, (e) support it, and (f) independent use (Graham & Harris, 1996). There are also four self-regulation skills explicitly taught and supported throughout the stages: (a) goal-setting, (b) self-monitoring, (c) self-instruction, and (d) self-reinforcement (Graham & Harris, 1996). The Reciprocal Teaching strategy (Palincsar & Brown, 1985) modified by the PI includes the original steps of clarifying, predicting, questioning, and summarizing, but includes one additional step: enthymeme (thesis) creation. The first MRT strategy, the planning strategy, was developed to support the planning stages of the writing course's essays. Each essay requires use of an enthymeme that is inspired and supported by one of the course readings, which utilizes critical literacy skills. As stated in the literature review, the development of critical literacy could be supported by reading-writing strategies (Flower, 1990). Thus, RT was modified to support the intervention group

attend to the main ideas of assigned readings while creating possible enthymemes. The planning strategy includes:

(a) Predict what you think the reading will be about

(b) Clarify your hypothesis while you read

(c) Summarize what the reading was about

(d) Create a question at issue that addresses one or more major aspects of the reading

(e) Create an enthymeme that answers your question

A mnemonic device was created for the "describe it" stage of SRSD which can be found, along with a full explanation of what is involved at each step and during each stage of SRSD, in Appendix A.

Another MRT strategy, the revision strategy, was taught after students had mastered the planning strategy. The revision strategy is a modified version of RT intended to increase students' abilities to self-revise since revision is a key component of the writing course and instructor grading. The steps of the revision strategy are similar to the planning strategy, but are used in reverse order. They include:

(a) Enthymeme; ensure the enthymeme fits with the course requirements

(b) Question at Issue; confirm the enthymeme answers a question related a major point of an assigned reading

(c) Summarize; summarize the main point of the paper and check that it matches what the argument of the enthymeme is

(d) Clarify; clarify points and add points if the argument is not supported

(e) Predict; predict what may be said about the paper by instructors and peers, revise accordingly

Appendix B includes a checklist used during tutor training and provided to students as a tool for the memorize it and support it stages of SRSD while learning the revision strategy.

The primary investigator collected all data from the TOWL IV during assessment prior to the beginning of the term and at the close of the term, along with final course grades collected through the students' advisors. Tutors working with assigned student-athletes, as well as the PI, collected graded essays during appointments and through email correspondence.

Data Analysis Techniques

All data were analyzed using a one-way Analysis of Covariance (ANCOVA) procedure. Pre-test scores on the TOWL and pre-essay grades were entered as covariates, group assignment was the independent variable (Intervention vs. Control), and post-test scores on the TOWL IV, second essay grades, and post-GPA in the course will be dependent variables. This analysis will allow us to determine the effectiveness of the combined SRSD/MRT intervention on the writing skills of student-athletes.

CHAPTER IV

RESULTS

Data Analysis

A multivariate analysis of covariance (MANCOVA) was conducted to compare students in the intervention and control; group on the dependent variables including TOWL scores, Essay scores, and course grades. For this analysis pretest scores were entered as covariates, post-test scores were the dependent variables and students were grouped by condition (intervention vs. control). The following table outlines the mean and standard deviation for each major study variable analyzed for the control and intervention conditions (Table 1). The results of the overall MANCOVA were not significant suggesting that there was no multivariate difference between the groups, Wilks' Lambda $F = .402\ (5, 21)$, $p < .84$.

Table 1
Descriptive statistics of the study variables for two conditions

Data Item	Control		Intervention	
	M	SD	M	SD
Average of Fidelity Measure	1.27	.467	5.11	.631
Fidelity Item	1.00	.000	4.69	1.549
Tutoring Minutes	777.09	58.305	781.70	100.811
Intervention Minutes	0.00	.000	238.40	93.764
High School GPA	3.32	.478	3.22	.350
SAT	987.78	163.843	966.32	126.281
ACT	20.50	4.950	19.00	0.000
Percentile Rank for SAT/ACT	46.27	25.640	41.80	20.167
GPA in WR 121 Course	3.15	.607	2.93	.753
Pre TOWL Subtest 6 Total	27.27	5.179	25.15	4.626

Table 1 Continued
Descriptive statistics of the study variables for two conditions

Data Item	Control		Intervention	
	M	SD	M	SD
Pre TOWL Subtest 6 Percentile	86.73	14.581	81.80	18.369
Pre TOWL Subtest 6 Standard Score	14.00	2.449	13.20	1.989
Pre TOWL Subtest 7 Total	14.09	3.700	14.50	3.253
Pre TOWL Subtest 7 Percentile	86.09	16.090	89.10	23.163
Pre TOWL Subtest 7 Standard Score	14.82	3.311	15.10	3.323
Pre TOWL Standard Score	29.00	5.020	28.30	4.846
Pre TOWL Percentile	93.64	8.115	91.75	21.287
Pre TOWL Composite Index	132.36	16.949	129.75	15.970
Post TOWL Subtest 6 Total	26.09	3.390	25.65	3.453
Post TOWL Subtest 6 Percentile	85.64	10.764	84.70	10.800
Post TOWL Subtest 6 Standard Score	13.55	1.508	13.45	1.638
Post TOWL Subtest 7 Total	12.64	2.580	12.80	2.726
Post TOWL Subtest 7 Percentile	82.64	17.586	82.50	18.928
Post TOWL Subtest 7 Standard Score	13.55	2.382	13.75	2.613
Post TOWL Standard Score	27.09	3.113	27.20	3.820
Post TOWL Percentile	92.27	10.209	91.50	9.992
Post TOWL Composite Index	125.55	10.270	126.00	12.612
Essay 1	2.69	.726	2.52	.976
Essay 2	3.06	.785	2.96	.774

To evaluate the extent to which treatment fidelity was associated with intervention effects, correlation coefficients were computed among fidelity measures, course GPA, gains on the TOWL IV Standard Score, gains from Essay 1 to Essay 2, gains on the TOWL IV Subtest 6 Total, and gains on the TOWL IV Subtest 7 Total. The fidelity measures used in this correlation were the average of a single item on the fidelity observation form created by the PI from two separate observations (Fidelity Item) and an

average of all items on the fidelity observation form relevant to the step of the intervention used during two separate observations (Fidelity Average). Table 2 outlines the results of the correlational analyses, which show that 6 out of the 21 correlations were statistically significant. In addition, only 4 correlations were positively correlated at greater than or equal to .50, or at levels that connote a strong correlation. The correlation between Fidelity Average and Fidelity Item was found to be significant, $r(18) = .674$, $p < .01$, as well as the correlation among the TOWL IV Standard Score Gain, TOWL IV Subtest 6 Gain, and TOWL IV Subtest 7 Gain, where $r(18) > .70$, $p < .01$ for each correlation. These results suggest that students' tutors rated highly on the single fidelity item were also rated highly on the total items included in the average. The results also suggest that students who had greater gains on any one of the TOWL IV measures included in the correlational analyses, also had greater gains on all other TOWL IV measures included. The two significant negative correlations were between Essay Gain and Fidelity Item, $r(18) = -.604$, $p < .01$, and Essay Gain and Fidelity Average, $r(18) = -.586$, $p < .01$. These results, along with all other correlations that were lower and not significant, suggests that students' tutors who were highly rated on fidelity measures did not produce stronger intervention effects. The negative correlation may even suggest that students' tutors who were highly rated on fidelity measures produced weaker intervention effects.

Table 2
Correlations among fidelity measures and gain scores (N=20)

		1.	2.	3.	4.	5.	6.
1. Fidelity Item	*r*	-					
2. Fidelity Average	*r*	.674***	-				
3. Course GPA	*r*	.144	.142	-			
4. TOWL IV Standard Score Gain	*r*	-.252	-.164	-.327	-		
5. Essay Gain	*r*	-.604**	-.586**	-.251	.068	-	
6. TOWL IV Subtest 6 Gain	*r*	-.145	-.064	-.364	.879***	.103	-
7. TOWL IV Subtest 7 Gain	*r*	-.254	-.118	-.330	.934***	.056	.706***

** $p < .01$ *** $p < .001$

CHAPTER V

DISCUSSION

There is currently a dearth of literature and experimental research that exists on postsecondary writing support, and specifically writing support for student-athletes at the postsecondary level. Though there are a multitude of studies focusing on adolescent literacy and intervention and in spite of the high numbers of underprepared students, including student-athletes, enrolling in postsecondary institutions, few studies have examined possible methods of ameliorating writing deficits. In the current study I attempted to improve the writing skills of freshman student-athletes in an introductory writing course through a multi-component intervention that combines two empirically validated strategies-- Self-Regulated Strategy Development (SRSD, Harris & Graham, 1996) and a modified version of Reciprocal Teaching (MRT, Palincsar & Brown, 1985). My findings indicated that both groups improved their writing skills at similar levels and in areas where both groups had losses on various measures, the intervention group had slightly lower loses or had minor gains, this may be due to the equal effectiveness of the designed intervention and traditional one-to-one tutoring. These results may also indicate that the measures of writing skills were not valid measures of the skills impacted by the intervention. The results of the correlations among fidelity measures may also support the finding that the measure of writing skills may not have been valid for the skills targeted by the intervention. The lack of correlation between essay gain and TOWL subtest and standard score gain suggests that both measures do not assess similar skills, reinforcing the suggestion that the measures may not be valid measures of skills impacted by the intervention. In addition, the significant negative correlation between fidelity and

essay gain may indicate that tutors who implement the intervention with more fidelity produced weaker essay gains. This may be due to the ineffectiveness of the intervention, or the ineffective use of non-intervention tutoring minutes by tutors with higher fidelity scores. The intervention tutors used, on average, 30% of all time spent with students for intervention instruction, and if tutors were implementing the intervention with high fidelity, but not utilizing non-intervention time for general writing support, then students may not have made as great of gains as a result. However, there was no observation of non-intervention tutoring fidelity to determine if students in the intervention group received support equal to that of the control group. The research conducted does not yield any significant results supporting the use of SRSD/MRT over traditional one-to-one tutoring to improve the writing skills of freshman student-athletes in an introductory writing course, however the study does bring awareness to the need for more research. Additionally, it may provide a practical framework for other support services for student-athletes departments to integrate experimental research with student-athlete services.

Limitations

A number of limitations should be considered regarding the current study, these include sample size, participants, measures, and length of study. The relatively small number of participants at one postsecondary institution limits the current study and a larger study with more participants and multiple postsecondary institutions may yield starkly different results. Though the randomization of the trial yielded largely comparable characteristics between the control and intervention groups (HS GPA, SAT/ACT Percentile Rank, Essay 1 scores, and Pre-TOWL scores), the participants were not representative of all athletic teams provided services at the university. Men's

Basketball, Men's Golf, Men's Tennis, Women's Lacrosse, Women's Soccer, and Softball did not have any participating members in the study. Additionally, the intervention group had a larger proportion of male participants in comparison to the control group (80% and 55% respectively). The study may have also been compromised by the inability to include all subjects initially targeted for the study. As a result of conflicts in assessment schedules, missing data sets, and dropped courses, a number of participants were excluded from the final data analysis. Again, a larger sample size with randomization would likely lead to more comparable groups and include a more diverse representation of NCAA sanctioned sports.

Though the TOWL IV has been found to be a valid and reliable measure of writing skills, it may not be a valid measure of the specific sub-skills of writing targeted by the intervention. The TOWL IV Spontaneous Writing Subtest requires respondents to create a full narrative to accompany an image provided to them. This type of writing may not be comparable to the type of writing used and developed in an introductory writing course. The second measure used in the study, essay grades, may be unreliable since grading rubrics vary from instructor to instructor and students were in a variety of course sections. The third measure used in the study, course grades, may also be unreliable for similar reasons; instructors all have varying course requirements and rubrics. A normed assessment that requires a persuasive essay similar to the essays required in the introductory writing course may be more valid, in addition using one course section with one grader, or a standard rubric and a confirmation of inter-rater reliability would create more reliable results for essay and course grades.

Finally, the length of the intervention may not have been sufficient to adequately instruct participants in the use and mastery of the MRT strategies. Though tutors did confirm student mastery of the planning strategy, it is unlikely that true mastery and generalization could be achieved in only six weeks, especially for the revision strategy. This is further confirmed by the limited number of intervention minutes documented by tutors, the mean of which was 238.40, with a standard deviation of 93.76, roughly 30% of all the minutes spent in tutoring sessions. A more concentrated and lengthier intervention may yield more significant results.

Lessons Learned

In addition to the previously stated recommendations for future research, there are also three other areas that may be valuable to the field of postsecondary writing. The first possible area of research is in use of SRSD coupled with empirically validated writing strategies. Although the current study did not reveal any significant findings, SRSD has been empirically validated for use with adolescents in the areas of writing and reading, and it could be fruitful to continue to investigate its' effectiveness with postsecondary populations and university student-athletes (Anderson, 1997; Curry, 1997; De La Paz, 2005; De La Paz & Graham, 1997; De La Paz & Graham, 2002; Glaser, 2005; Johnson, Graham, & Harris, 1997; MacArthur, Schwartz, & Graham, 1991; Sawyer, Graham, & Harris, 1992).

The second possible area of research is in conducting longitudinal studies on the effectiveness of services and interventions provided to university student-athletes. Though the short-term effects of the intervention provided in the current study were not significant, the long-term effects may be more significant. In addition, many of the

studies conducted using university student-athlete populations do not examine the effects of services over a student-athlete's entire college career. Although many departments use graduation rates and student use rates to examine service effectiveness, an empirical analysis of the correlation between specific services utilized, the amount of time using specific services, grades and years to complete degree may be useful in determining which services are most effective for student-athletes.

The third possible area of research is targeting "at-risk" student-athletes, which may include student-athletes with disabilities, conditional NCAA qualification, or special admittance to a university. While there is a dearth of research concerning academic intervention with university student-athletes as a whole, there is an even greater deficiency in the amount of research concerning "at-risk" students athletes, especially student-athletes with disabilities. Though services for these populations are growing, more research needs to be conducted to determine how best to serve these students (Grandstaff-Beckers, 2006).

Conclusion

Many freshmen entering postsecondary institutions lack the skills necessary to be successful in college level writing courses. Student-athletes are one specific population of university communities who may need even greater support to ameliorate these skill deficits, however there is currently a lack of research on how to improve students' writing skills at the postsecondary level. Much of the literature that exists points to the use of strategy instruction, using SRSD as an instructional method, in order to improve writing and reading skills. The present study identifies some possible areas for further exploration of SRSD and its use with postsecondary student-athletes despite inconclusive

results. As a result of the necessity of writing skills for success in postsecondary institutions, as well as in future employment, it is reasonable to call for further investigation into possible interventions and strategies for improving the writing skills of postsecondary students.

APPENDIX A

MODIFIED RECIPROCAL TEACHING STEPS

Reading Comprehension and Enthymeme Development Strategy

Mnemonic:
Please
Call
Suzie
Q
Every day

Predict

Predict what you think the reading will be about. Read the title, first sentence, first paragraph and hypothesize what will be in the reading. This is intended to encourage students to engage the reading and think about the content before and while they read. It also helps them connect content to their prior knowledge, which is vital for memory.

Clarify

Clarify your hypothesis while you read. As students read they should alter their prediction as the content of the reading fails to match their prediction or adds more detail or a new idea. Again students must engage the reading and think critically about the content to complete this step.

Summarize

Summarize what the reading was about. Students should be able to articulate or write out a short summary including the main points of the reading. If students do not have an accurate picture of the reading, they will be unable to use it within their writing and be unable to create a topic that correctly addresses the reading. If a student is having difficulty with this step, it is often because they do not have the background knowledge necessary to understand certain concepts, or they are having difficulty engaging the reading. If a student cannot summarize a whole reading, try a whole paragraph, if that is difficult have them summarize sentence by sentence and then create a main idea.

Question Issue

Create a question at issue that addresses one or more major aspects of the reading. This is the step where we want students to use what they have learned in the reading to inform the topic of their paper. It should tackle one of the main points of the reading so that students can use the reading itself to support their argument. Questions at issue should have multiple possible answers and should address an issue that people can be reasonable about, it should not be a topic that is too polarizing or personal.

Enthymeme

Create an enthymeme that answers your question at issue. This step simply turns the question at issue into a thesis/enthymeme they can use in their papers. The enthymeme answers the question and provides the reason behind it. Within the enthymeme students should use the word because to connect the answer (claim) and reason.

APPENDIX B

REVISION STRATEGY FOR WR 121

Enthymeme
What is your enthymeme?
Is it a topic that is debatable?
Does it use because?
Is the reason behind it logical?
Do the two parts have a claim-proof relationship?
Do the two parts address the same subject?

Question at Issue
Does your enthymeme answer the question at issue?
Does it address one or more of the main points of the reading?

Summarize
Can you describe the summary/main point of your paper?
Does that summary/ main point address the question at issue and enthymeme?
Does your paper prove the enthymeme is correct?
Are there any missing parts to the summary, any holes that need to be filled?

Clarify
Are there any supporting arguments that need to be made clear, changed?
Is their proof that is missing from your argument?
Do your quotes clearly reinforce your argument; are the transitions before and after smooth?
Is your conclusion clear and does it reinforce your point?
Have you shown the counterargument and refuted it?

Predict
What do you predict comments/criticisms may be?
What are some of the revisions you needed to make for the last paper?

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